REMARKS

Withdrawal of Claims 109-114:

The withdrawal by the Examiner of Claims 109-114 due to the claims being drawn to a constructively elected invention is acknowledged. Applicants reserve the right to pursue Claims 109-114 at a later time.

Claims 3-11, 36-39, 72-74 and 102-114:

Claims 3, 8-11, 36, 39, 72-74, 102-105, 107 and 108 are rejected under 35 U.S.C. §103 over a three-way combination of Takahashi[1], Bencher et al[2] and what the Examiner calls Applicant's admitted prior art (AAPA). The Examiner rejects the other pending claims being considered, claims 4-7, 37, 38 and 106, over the above-mentioned three references, in still further view of Wang et al.[3]

The Examiner's primary reference, Takahashi, discloses a structure in Takahashi's figure 2C. The structure includes a top electrode 306 disposed over a portion of a dielectric layer 305. Takahashi does not, however, anywhere disclose a portion of the dielectric layer being removed from an "inter-electrode region" as recited by Applicants' claims. The Examiner recognizes this deficiency as evidenced by the statement in the Office Action that "Takahashi is silent to wherein a portion of the dielectric layer is removed from the inter-electrode region. Takahashi is silent to a method of etching this process step" (Office Action, page 5, lines 8-10). In fact, neither Takahashi nor Bencher anywhere disclose or recognize removal of dielectric from the recited inter-electrode region. More importantly, neither Takahashi nor Bencher anywhere recognize that there might be a problem associated with such undercutting.

Due to this shortcoming, the Examiner looks to Applicants' specification for a recognition of the undercutting problem solved by Applicants' invention.

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[1] USP 5,683,931.
[2] "Dielectric Antireflective coatings for DUV Lithography," Solid State Technology, March 1997, p. 109.
[3] USP 5,545,585.

The Examiner states in pertinent part "The AAPA teaches in figure 2, figure 3, page 3, lines 11 and 12, page 4, lines 25 – page 5, line 2, and page 10, lines 20-30 a method of etching a capacitor dielectric (60/160) wherein a portion of the dielectric layer is removed from an inter-electrode region (180)" (Office Action, page 5, lines 10-13). The Examiner then concludes that Applicants' invention would have been obvious.

Applicants' Response

Applicants submit that the Examiner is inappropriately using teachings in Applicants' patent application against them. This is improper. Reconsideration and withdrawal of the §103 rejection is respectfully requested. Despite all the Examiner says, the fact remains that if the cited Takahashi and Bencher references are considered by themselves without hindsight knowledge of Applicants' invention and without the benefit of the teachings in Applicants' application, the invention specifically recited in claims 3-11, 36-39, 72-74 and 102-114 would not have been "obvious" to one of ordinary skill. Takahashi and Bencher do not, by themselves, render Applicants' invention "obvious". The Examiner is requested to put Applicants' application and their teachings aside and to review the cited references without the benefit of hindsight knowledge of Applicants' invention.

The §103 rejection relies on three sources of teachings: Takahashi, Bencher and the so-called AAPA. One of the three sources, the so-called AAPA, is in fact not prior art and would not have been available to one of ordinary skill in the art. The Examiner's use of Applicants' teachings is evidence of the shortcomings of the teachings in the prior art. Accordingly, the §103 rejection is an impermissible hindsight obviousness rejection. Reconsideration without the use of Applicants' teachings is requested.

The Drawings:

The Office Action states that "Figures 2 and 3 should be designated by a legend such as –Prior Art—because only that which is old is illustrated.... A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance." (Office Action, page 3, lines 5-9).

In response, Applicants respectfully decline to do that which is improper and incorrect. Contrary to the statement by the Examiner, Figures 2 and 3 do not illustrate "only that which is old". Figure 3, for example, illustrates and therefore teaches an undercutting nowhere recognized in the prior art. This is, in fact, a very important shortcoming in the Examiner's cited Takahashi and Bencher references. Of importance, the corresponding text in Applicants' specification teaches a problem associated with the unrecognized undercutting of Figure 3. It would be improper for there to be an implication in the application that the existence of the undercutting, or the recognition of a problem created by the undercutting, is somehow "prior art". It is not "prior art" and it is not "admitted"[4] by Applicants to be prior art. The application states, "Figure 2 shows an embodiment of the present invention at the state where the upper electrode has been defined. Figure 3 shows the same embodiment after the excess capacitor dielectric has been removed" (Office Action, page 7, lines 26-29). For these reasons, Applicants respectfully decline to add erroneous –Prior Art—legends to Figures 2 and 3.

[4] The teachings in Applicants' patent application of: 1) the existence of undercutting, and 2) a problem associated with undercutting when the structure is covered by an ARL, do not appear in a section of Applicants' specification called "PRIOR ART." The section, quite to the contrary, is called "Background of the Invention." Applicants respectfully state for the record that the problem they have identified is not "prior art," is not "admitted" by Applicants to be prior art, and should not be called "Applicants' Admitted Prior Art (AAPA)."

35 U.S.C. §112, First Paragraph:

Claim 102 stands rejected under 35 U.S.C. §112, first paragraph, for failing to comply with the written description requirement. The Office Action states, in pertinent part, "It is not clear where in the originally filed specification support for 'using isotropic wet etching' can be found" (Office Action, page 3, line 19 - page 4, line 2). Similarly, Claims 107 and 108 stand rejected under 35 U.S.C. §112, first paragraph, for failing to comply with the written description requirement. The Office Action states, in pertinent part, "It is not clear where in the orginally filed specification support for "using isotropic etching" can be found" (Office Action, page 4, lines 7-8).

In response, Applicants respectfully point the Examiner to the statement "Step 10 is the etch of the capacitor dielectric. In the preferred embodiment, this is a Buffered Oxide Etch (BOE), although other embodiments could employ a dry or other etch. ... The result of this process is shown in Figure 3. ... An unwanted consequence of step 10 is that ... some of the wanted dielectric is also removed. This is the undercutting indicated in Figure 3 at 180" (Application specification, page 10, lines 20-30). The mention of a Buffered Oxide Etch is a disclosure of a wet etch. The mention of "undercutting", and its illustration in Figure 3, is a disclosure that the etching of step 10 is isotropic.

Withdrawal of the §112, first paragraph, rejection is respectfully requested.

Conclusion

In view of the foregoing remarks, it is submitted that Claims 3-11, 36-39, 72-74 and 102-114 are in condition for allowance. A Notice of Allowance is respectfully requested. If the Examiner would like to discuss any aspect of this

application, the Examiner is requested to contact the undersigned at (925) 621-2121.

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to: Mail Stop AF, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

By Darien K. Wallace
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Respectfully submitted,

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